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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/628,256

07/29/2003

Tailee Chen

BHT-3167-147

5442

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10/18/2004

BRUCE H. TROXELL

SUITE 1404

5205 LEESBURG PIKE

FALLS CHURCH, VA 22041

EXAMINER

CHEN, SHIH CHAO

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/628,256

Applicant(s)

CHEN, TALEE

Examiner

Shih-Chao Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-20 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 7 and 12-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Claim Objections***

2. Claims 1 and 15 are objected to because of the following informalities: in line 5, "an RF" should be changed to --a RF--. Appropriate correction is required.
3. Claim 14 is objected to because of the following informalities: in line 1, the phrase "The multi-frequency printed antenna according to claim 1," should be changed to --The multi-frequency printed antenna according to claim 13--, because in claim 14, a third via hole is based on claim 13. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 are rejected under 35 U.S.C. 102(b) as being anticipated by Gleener (U.S. Patent No. 6,339,405).

Regarding claim 1-2, 5-6, 8 and 11, Gleener teaches in figures 1-2 a multi-frequency printed antenna [10], comprising: a substrate [12] with an insulating plate structure and having a first surface [14] and a second surface [16] opposite to the first surface; a feed strip [24] formed on the first surface [14] and extending in a first direction, in which one end of the feed strip is connected to a signal terminal [26] of a RF signal source; a first radiating conductive strip [18] formed on the first surface [14] and extending in the first direction, in which the first radiating conductive strip [18] has a first connecting portion [22] for connecting to another end of the feed strip [24]; a second radiating conductive strip [20] formed on the first surface [14] and extending in the first direction, in which the second radiating conductive strip [20] has a second connecting portion [22] for connecting to the another end of the feed strip [24]; a ground strip [32] formed on the second surface [16] and extending in the first direction, in which one end of the ground strip is connected to a ground terminal [36] of the RF signal source; a first grounded conductive strip [28] formed on the second surface [16] and extending in the first direction, in which the first grounded conductive strip [28] has a third connecting portion [32, i.e. T-shaped ground line] for connecting to another end of the ground strip; and a second grounded conductive strip [30] formed on the second surface [16] and extending in the first direction, in which the second grounded conductive strip [30] has a fourth connecting portion [32] for connecting to the another end of the ground strip, wherein the first radiating conductive strip [18] and the first ground conductive strip [28] form a first half wavelength dipole antenna for a first frequency transmission while the second radiating conductive strip [20] and the second

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ground conductive strip [30] form a second half wavelength dipole antenna for a second frequency transmission.

Regarding claim 2, Gleener teaches in figures 1-2 the multi-frequency printed antenna according to claim 1, wherein the first and second radiating conductive strips [18, 20] are symmetrically disposed on opposite sides with respect to the feed strip [24].

Regarding claim 5, Gleener teaches in figures 1-2 the multi-frequency printed antenna according to claim 1, wherein the feed strip [24] substantially overlies the ground strip [32].

Regarding claim 6, Gleener teaches in figures 1-2 the multi-frequency printed antenna according to claim 1, wherein the first and second connecting portions [22] extend in a second direction substantially perpendicular to the first direction.

Regarding claim 8, Gleener teaches in figures 1-2 the multi-frequency printed antenna according to claim 1, wherein the first and second grounded conductive strips [28] are symmetrically disposed on opposite sides with respect to the ground strip [32].

Regarding claim 11, Gleener teaches in figures 1-2 the multi-frequency printed antenna according to claim 1, wherein the third and fourth connecting portions [32] extend in a second direction substantially perpendicular to the first direction.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-4 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gleener (Cited above).

Gleener discloses the claimed invention except for the feed strip and the first radiating conductive strip are disposed on opposite sides with respect to the first connecting portion; the feed strip and the second radiating conductive strip are disposed on opposite sides with respect to the second connecting portion; the ground strip and the first grounded conductive strip are disposed in the same side with respect to the third connecting portion; and the ground strip and the second grounded conductive strip are disposed in the same side with respect to the fourth connecting portion. It would have been obvious to one having ordinary skill in the art the time the invention was made to reversal of radiating conductive strips or grounded conductive strips, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art.

***Allowable Subject Matter***

8. Claims 15-20 are allowed.

9. Claims 7 and 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 15-20 is the inclusion of the limitation of each of the first and second radiating conductive strips together with each

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of the first to fourth ground conductive strips form a dipole antenna for achieving multi-frequency transmission. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 7 is the inclusion of the limitation of the first radiating conductive strip and the second ground conductive strip-form a third half wavelength dipole antenna for a third frequency transmission. It is this limitation found in the claim, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 12 is the inclusion of the limitation of the second radiating conductive strip and the first ground conductive strip-form a fourth half wavelength dipole antenna for a fourth frequency transmission. It is this limitation found in the claim, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

The primary reason for the allowance of claims 13-14 is the inclusion of the limitation of the fourth radiating conductive strip has one end connected to the second connecting portion through the second via hole. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

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***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Shih-Chao Chen*

Shih-Chao Chen  
Primary Examiner  
Art Unit 2821

SXC  
September 20, 2004